



PATENT APPLICATION  
Mo6608  
LeA 34,892

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICATION OF	)	
ERICH FUCHS	)	GROUP NO.: 1713
SERIAL NUMBER: 10/053,166	)	
FILED: JANUARY 15, 2002	)	EXAMINER: R. A. LEE
TITLE: RUBBER MIXTURES FOR ROLL COVERINGS	)	

**LETTER**

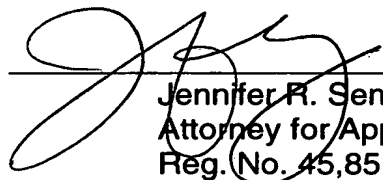
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are three copies of an Appeal Brief in the matter of the subject Appeal. Please charge the fee for filing the Brief, \$330.00, to our Deposit Account Number 13-3848.

Respectfully submitted

By

  
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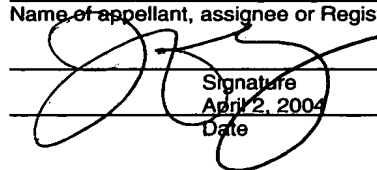
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4/2/04

Date

Jennifer R. Seng, Reg. No. 45,851

Name of appellant, assignee or Registered Representative

  
Signature

April 2, 2004

Date



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**APPEAL BRIEF**

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Brief, submitted in triplicate, is an Appeal from the Final Office Action dated October 30, 2003, in which Claims 1-8 and 11 were rejected.

**I. REAL PARTY IN INTEREST**

Each of the inventors has assigned his rights in this application to Bayer AG, a German Corporation. The real party in interest in this Appeal is therefore Bayer AG.

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4/2/04

Date

Jennifer R. Seng, Reg. No. 45,851

Name of appellant, assignee or Registered Representative

Signature  
April 2, 2004  
Date

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## II. RELATED APPEALS AND INTERFERENCES

There are no pending appeals or interferences of which Applicant is aware that would be affected by or have a bearing on the Board's decision in this Appeal.

## III. STATUS OF CLAIMS

Claims 1-8 and 11 remain pending and are subject to this Appeal. <sup>o</sup>

## IV. STATUS OF THE AMENDMENT

After the Final Office Action, Appellant filed a Response which did not include an Amendment to Claims 1-8 and 11. The Amendment, which was not entered, only cancelled withdrawn Claims 9, 10 and 12.

## V. SUMMARY OF THE INVENTION

The present invention relates to a rubber mixture comprising one or more carboxylated nitrile rubbers, one or more metal salts of an acrylate, one or more liquid acrylates optionally applied onto a support, from 0.01 to 8 phr of one or more silanes, and optionally further additives and/or fillers.

## VI. ISSUES

Claims 1-8 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hert, et al. (U.S. Patent No. 5,985,392) in view of Fujii, et al. (EP 0 933 381).

## VII. GROUPING OF CLAIMS

None of Claims 1-8 or 11 will be argued separately in response to the Issues. Therefore, Claims 1-8 and 11 stand or fall together.

## VIII. ARGUMENTS

**Appellant's invention as claimed in Claims 1-8 and 11 is not obvious in view of Hert, et al. in combination with Fujii, et al.**

Appellant respectfully submits that "in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion

or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claims limitations. The teachings or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure." See MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ 2d. 1438 (Fed. Cir. 1991).

The issue of motivation is properly addressed in terms of one of ordinary skill in the art who has not had access to Appellant's Specification. As set forth by the Federal Circuit in In re Dow Chemical, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988) "the consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art". The proper standard clearly required by the Federal Circuit is that "both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure". The fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient to establish *prima facie* obviousness.

Appellant submits there is no motivation to combine Hert, et al. and Fujii, et al. and arrive at the instant invention. Hert, et al. discloses blends of thermoplastic and rubbers which are adherent to thermoplastics. Example 4 of Hert, et al. discloses a rubber composition including carboxylated butadiene nitrile rubber, silica, silane, zinc oxide, and a wax (which includes zinc acrylate). According to Hert, et al., the rubber composition is mixed with a polyetheresteramide. Table 1, discloses that the combined mixture has a Shore Hardness D of 30. As stated in the Office Action, Hert, et al. does not teach each and every element of the claimed invention, namely, the liquid acrylate.

Fujii, et al. discloses highly saturated carboxylated nitrile copolymer rubbers and processes for the production thereof. Fujii, et al. teaches a rubber mixture comprising a carboxylated nitrile group containing rubber having specified acid equivalents, infrared absorption, Mooney viscosity and iodine value and a crosslinking agent. See paragraphs 18 and 67. Fujii, et al. teaches that useful

crosslinking agents include sulfur type and organic peroxide type crosslinking agents. See paragraphs 67-79. Fujii, et al. further discloses that with an organic type crosslinking agent it is preferred to use in combination a crosslinking aid such as a trimethylolpropane trimethacrylate. See paragraph 74. Fujii, et al. does not suggest that the rubber disclosed therein is soft enough to be mixed well and has an excellent hardness.

As disclosed in Tables 2-5 the rubber mixtures taught in Fujii, et al. have a hardness, according to JIS A which is very similar to Shore Hardness A, of between 70-76. Fujii, et al. does not teach or suggest a rubber mixture comprising a one or more carboxylated nitrile rubbers, one or more metal salts of an acrylate, one or more liquid acrylates optionally applied onto a support, from 0.01 to 8 phr of one or more silanes, and optionally further additives and/or fillers would have an excellent Shore Hardness D. In fact, Appellant submits that when the Shore Hardness A of a vulcanized rubber is in the range of 80-90 the scale of Shore Hardness A becomes imprecise, as the scale of Shore Hardness A and D overlap in that range. Therefore, when the vulcanized rubber gets that hard, the Shore Hardness D must be measured. And as noted in Tables 2 and 4 of the Specification of the present invention, the claimed rubber mixtures have a Shore Hardness A of between 90 and 99 and have a Shore Hardness D between 40 and 70. Accordingly, the rubber of the claimed invention is much harder than the rubber disclosed in Fujii, et al. or Hert, et al.

Appellant submits, based on the facts above, that one skilled in the art would not have been motivated to combine the disclosure of Hert, et al. and Fujii, et al. to arrive at a rubber mixture with an improved hardness because neither disclosed rubber mixture has a Shore Hardness D measurement so high.

Further, Appellant submits even if one skilled in the art followed the reasoning submitted in the Final Office Action dated October 30, 2003, which Appellant submits is flawed; one skilled in the art would not arrive at the present invention.

The present invention is directed to a rubber mixture comprising one or more carboxylated nitrile rubbers, **one or more metal salts of an acrylate, one or more liquid acrylates optionally applied onto a support**, from 0.01 to 8 phr of one or more silanes, and, optionally further additives and/or fillers.

Hert, et al. discloses blends of thermoplastic and rubbers which are adherent to thermoplastics. Example 4 of Hert, et al. discloses a rubber composition including carboxylated butadiene nitrile rubber, silica, silane, zinc oxide, and a wax (which includes, amongst other ingredients PEG, stearic acid, and zinc acrylate).

Fujii, et al. discloses a rubber mixture comprising a carboxylated nitrile group containing rubber having specified acid equivalents and crosslinking agents such as sulfur type and organic peroxide type crosslinking agents. See paragraphs 67-79. Fujii, et al. further discloses that with an organic type crosslinking agent it is preferred to use in combination a crosslinking aid such as a trimethylolpropane trimethacrylate. See paragraph 74.

According to the Final Office Action, Fujii, et al. teaches the use of liquid acrylates when peroxides are used as crosslinking agents and Zn oxide is reserved for compositions cured with sulfur. Therefore, according to the Final Office Action, one skilled in the art would glean that Hert et al.'s teachings of peroxide with Zn oxide is not effective in view of Fujii, et al.

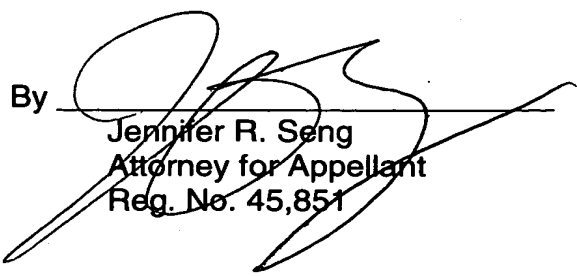
This proposition of taking one teaching as effective and another teaching as in-effective in order to provide motivation and arrive at the instant invention is counterintuitive and would not teach likelihood of success of the present invention, nor would one be motivated to use this backwards teaching to combine these references.

That aside, following this backward reasoning, according to the Office Action, one skilled in the art would have been motivated to substitute Hert et al.'s zinc oxide with a liquid acrylate to achieve effective crosslinking. Even following this flawed reasoning, Appellant submits one skilled in the art would not arrive at the instant invention because one skilled in the art would have a zinc oxide, liquid acrylate combination, not a rubber mixture comprising a) one or more carboxylated nitrile rubbers, b) one or more metal salts of an acrylate, c) one or more liquid acrylates optionally applied onto a support, d) from 0.01 to 8 phr of one or more silanes, and e) optionally further additives and/or fillers.

Accordingly, for at least these reasons, Appellant respectfully requests withdrawal of this ground of rejection.

Respectfully submitted,

By



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#### APPENDIX: CLAIMS ON APPEAL

- Claim 1. A rubber mixture comprising
- a) one or more carboxylated nitrile rubbers
  - b) one or more metal salts of an acrylate
  - c) one or more liquid acrylates optionally applied onto a support,
  - d) from 0.01 to 8 phr of one or more silanes, and
  - e) optionally further additives and/or fillers.
- Claim 2. A rubber mixture according to Claim 1, wherein said carboxylated nitrile rubber(s) is selected from the group consisting of carboxylated NBR, partially hydrogenated carboxylated NBR and completely hydrogenated carboxylated NBR or mixtures of two or more of the members of the group.
- Claim 3. A rubber mixture according to Claim 1, wherein the metal salt of the acrylate is a Zn diacrylate or a Zn dimethacrylate or a mixture thereof.
- Claim 4. A rubber mixture according to Claim 1, wherein the liquid acrylate is butanediol dimethacrylate or trimethylolpropane trimethacrylate or a mixture thereof.
- Claim 5. A rubber mixture according to Claim 1, wherein vinylsilane is used as the silane.
- Claim 6. A rubber mixture according to Claim 1, wherein said mixture further more contains a silicate filler, carbon black, zinc oxide, magnesium oxide or a mixture of two or more of these components.
- Claim 7. A rubber mixture according to Claim 1, wherein the mixture contains vulcanization retarders and/or vulcanization accelerators.



**Claim 8.** A vulcanizable rubber mixture comprising a rubber mixture, which comprises

- a) one or more carboxylated nitrile rubbers
- b) one or more metal salts of an acrylate
- c) one or more liquid acrylates optionally applied onto a support,
- d) from 0.01 to 8 phr of one or more silanes, and
- e) optionally further additives and/or fillers.

**Claim 11.** A molding comprising a rubber mixture, which comprises

- a) one or more carboxylated nitrile rubbers
- b) one or more metal salts of an acrylate
- c) one or more liquid acrylates optionally applied onto a support,
- d) from 0.01 to 8 phr of one or more silanes, and
- e) optionally further additives and/or fillers.